

# SP3 Sensor

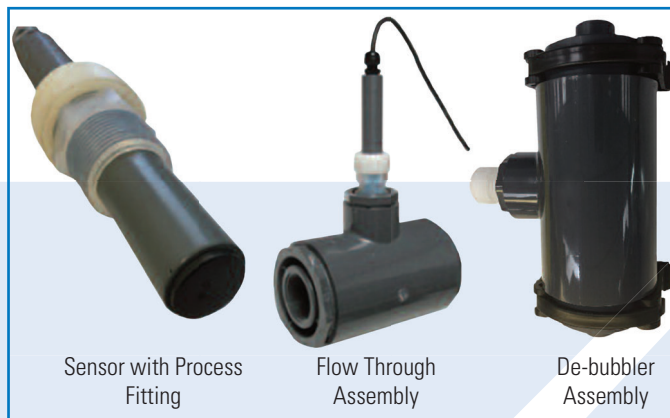
## Turbidity & Suspended Solids (TSS)



The SP3-TSS, Turbidity & Suspended solids (TSS) Sensor, uses a nephelometric 90 degree NIR Scattered light optical method in accordance to ISO 7027 / EN 27027 for measurements of turbidity or suspended solids. A light beam is directed into the sample where it is scattered by suspended particles in water. The amount of scattering depends on the solids concentration, size, and particle composition in water.

Designed for use in environmental, water treatment or drinking water, the TSS sensor is suitable for most water applications, available in the following ranges:

- < 40 NTU
- 0 - 1,000 NTU
- 0 - 4,000 NTU
- 0 - 5,000 mg/L
- 5,000 - 10,000 mg/L (MUD)
- 50,000 - 100,000 mg/L (SAND)



The SP3-TSS sensor is a 1" O.D. sensor that is suitable for immersion, flow through installation. For low range Turbidity or suspended solids, flow through cell with De-bubbler assembly is required. The application with <30 NTU is calibrated inside the flow cell to ensure best accuracy. Sensor cable from 10 ft up to 30 ft. is available for various installation requirements.

SP3-TSS is an optical sensor, therefore the optical surface must remain clean for accurate measurements. The sensing face should be oriented so that it is directly facing incoming flow of water, creating a self cleaning loop. Alternatively the SP3-TSS sensor can be supplied with a mechanical wiper or spray cleaning head. In immersion applications, cleaning and maintenance entail wiping the sensor window with soft cloth to remove solid deposits.

To improve low range analysis, Teledyne provides a specialized flow through chamber, De-Bubbler Flow cell, to remove dissolved gas bubbles from the sample, ensuring the measure to be noise free and free of air bubble interference. The SP3-TSS sensor can be calibrate with standard turbidity solution based on formazine, StablCal or SDVB Beads solution. The factory calibration is stored in the sensor's memory and values are used for diagnostic purpose throughout sensor life. Non-volatile memory are used to log user initiated calibration data, available for configuration retrieval.

## Features:

- Built based on the SP3 Smart Sensor platform, compatible with LXT330 Universal Transmitter
- Nephelometric optical method for measurement of Turbidity & Suspended Solids
- A fast responding and long life sensor that is not position or flow sensitive
- Calibration data stored on the sensor, with noise free stable digital output
- Flexible sensor design: integral cable, detachable cable, spray clean head, immersion or flow through
- Alternative mechanical wiper design for sensor optical head cleaning

## Specifications

<b>Range</b>	0 to 1,000 mg/L or 0 to 1,000 NTU, FNU 0 to 5,000 or greater mg/L or 0 to 4,000 NTU, FNU, ppm, mg/L and % solids 0 to 30 mg/L or 0 to 30 NTU, FNU
<b>Temperature</b>	23° to 123°F (5° to 50°C)
<b>Pressure</b>	50 psi, 3.5 bar max in flow cell
<b>Wetted Materials</b>	CPVC, polypropylene (optional), epoxy sensor end
<b>Process Connection</b>	1" NPT Nylon compression fitting
<b>Electrical Connection</b>	4-wire core cable
<b>Cable Length</b>	10 ft, 20 ft, 30 ft

# Sensor Configurations

Model	Description
SP3	Intelligent Sensor
<b>A. Sensor Style</b>	
TSS	Turbidity & Suspended Solids Sensor
TSSW	Turbidity & Suspended Solids Sensor w/ Wiper
<b>B. Optical Mount &amp; Body Material</b>	
1	Front Mounted Optics / CPVC
2	Front Mounted Optics / Polypropylene
<b>C. Process Connections &amp; Flow Cells</b>	
0	None
1	1 1/4" MNPT PVC Gland Fitting
2	Flow thru cell, 2 x 2" FNPT Entries, 1 x 1" FNPT Sensor Port
3	Flow thru cell, 2 x 3/4" Slip Entries, 1 x 1" FNPT Sensor Port
4	Flow thru cell, 2 x 3/4" FNPT Entries, 1 x 1" FNPT Sensor Port
5	Flow thru cell, 2 x 2" FNPT Entries, 1 x 1" FNPT Sensor Port w/ Spray Clean
6	Flow thru cell, 2 x 3/4" Slip Entries, 1 x 1" FNPT Sensor Port w/ Spray Clean
7	Flow thru cell, 2 x 3/4" FNPT Entries, 1 x 1" FNPT Sensor Port w/ Spray Clean
8	De-bubbler 3/4" FNPT Entries
<b>D. Cable Type &amp; Length</b>	
01	10 ft Waterproof/Submersible Cable
02	20 ft Waterproof/Submersible Cable
03	30 ft Waterproof/Submersible Cable
04	10 ft Water Resistant Cable
05	20 ft Water Resistant Cable
06	30 ft Water Resistant Cable
<b>E. Measurement Range</b>	
0	0 - 1,000 NTU
2	0 - 4,000 NTU
4	< 40 NTU (Calibrated with Flow Cell or De-bubbler)
<b>Accessories</b>	
	Retractable valve assembly TSS or TSSW
	Water cleaning nozzle, for immersion/submersion style only
	Immersion kit, user to supply 1" OD stand pipe, with 1" compression fittings, 1" PVC FNPT to slip adapter and T-Handle style cable feed through
	Handrail mounting brackets, for use with immersion assembly, (2) quick release U clamps to 2" handrail mounting system
	Calibration kit, 1L Cal Cup, 50/100/250 ml graduated cylinder, volumetric cylinder, 4,000 NTU calibration standard (Formazine), 500 mL
	4-20 mA USB Data Logger





# TELEDYNE ANALYTICAL INSTRUMENTS

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